

estudios y perspectivas

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The effectiveness of technical assistance, socio-economic development, and the absorptive capacity of competition authorities

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Abstract

Using survey data on technical assistance projects that was collected by the International Competition Network's Competition Policy Implementation Working Group during 2004 and 2005, I estimate the effect of different types of technical assistance on several performance measures of recipient competition authorities. Moreover, I examine whether the impact of each type of technical assistance varies with the capacity of a recipient authority to absorb technical assistance (which I will refer to as absorptive capacity) and the socio-economic development of the recipient country. A clear pattern of results emerges. Not all forms of technical assistance are alike in their effects and the impact on recipient authority performance appears to vary systematically with absorptive capacity and socio-economic development. Taken at face value, and supposing that maximizing the positive effect on recipient authority performance is the sole objective of a technical assistance programme in competition law and enforcement, these findings have implications for the mix of technical assistance activities that should be offered to competition authorities. These findings may, therefore, be of interest to suppliers of technical assistance which include established competition authorities, aid ministries, and international organizations.

Introduction

Resources are scarce. Providers of technical assistance to competition authorities must justify their budgets and programmes to more senior decision-makers who face competing demands with only limited resources available to them. Moreover, such providers are aware that there are different types of technical assistance on competition law and enforcement, and that recipient jurisdictions can differ in their socio-economic development and in the capacities of national competition authorities to absorb technical assistance. Evidence of the effectiveness of different types of technical assistance and the degree to which such effectiveness is contingent on measurable national circumstances could be useful in deciding the overall magnitude and composition of technical assistance programmes financed or offered by established competition authorities, aid ministries, and international organizations. Recipients of such assistance may also be interested in knowing, on the basis of previous experience, what types of technical assistance are more effective in societies at comparable stages of national and institutional development.

The econometric approach taken in this paper diverges, therefore, from the qualitative evaluations of providers of technical assistance and other commentators.¹ Qualitative accounts of competition-related technical assistance have provided useful context

¹ A wealth of useful information on various countries attitudes towards the effectiveness of different types of technical assistance can be found in OECD (2002). It should be noted that this document also discusses other matters relating to technical assistance on competition law and policy. I thank Russ Damtoft, Claudia Schatan, and Maria Tineo for their comments on an earlier draft of this paper. All remaining errors are my own.

specific information as well as some recommendations as to what types of technical assistance work best. However, it is a concern that such findings are typically based on information from on a very small number of technical assistance projects and countries, and therefore that the findings may not be applicable to a wider range of circumstances. As the circumstances of developing countries differ markedly this could be a potentially serious concern. The survey information used in this study involves responses from countries that are at very different levels of socio-economic development and include one least developed country and a small number of industrialized countries (one of which is particularly wealthy.) Even though quantitative assessments of the effectiveness of technical assistance programmes, such as this one, can have drawbacks of their own, it is hoped that the approach taken in this paper is sufficiently distinctive from those found elsewhere.

For readers impatient for an overview of this paper's findings I will summarize them now. Taking account of the socio-economic circumstances of recipient nations and the capacity of the competition authority to absorb technical assistance markedly affects the estimated impact of different types of technical assistance. The findings here imply that a mapping between recipient country circumstances and the types of technical assistance on competition law and related matters can be established.

On the basis of the results reported in this paper, competition agencies with a limited capacity to absorb technical assistance benefit more from the presence of short term advisors or consultants, attending national, regional, and international workshops, and from procurement support. As a competition agency develops a higher capacity to absorb technical assistance (perhaps through having more professional lawyers and economists on its staff) then the positive impact of these three forms of technical assistance on agency performance declines. At the same time, the impact of long term advisors and the value of study missions and internships abroad grows. There is also evidence that the latter two forms of technical assistance can reduce the recipient authority's effectiveness if they are introduced too soon.

Moreover, there is evidence that short term advisors should be phased out at a certain point and that long term advisors should be employed only when a jurisdiction has reached a relatively higher level of socio-economic development or the recipient authority develops a sufficiently extensive capacity to absorb technical assistance. There may well be intermediate levels of socio-economic development or absorptive capacity where it is, on the basis of the results reported here, ill advised to use short term or long term advisors. Procurement support for a competition authority is found to enhance effectiveness in almost all circumstances. Even after controlling for national levels of socio-economic development and the absorptive capacity of recipient competition authorities, commissioned academic studies are found to have no discernable impact on authority performance.

If a provider of technical assistance were solely interested in increasing the effectiveness of a recipient competition authority's performance the findings mentioned in the last two paragraphs have clear implications for which types of technical assistance should be used in what circumstances. It will be interesting to see if other quantitative evaluations come to the same policy recommendations.

The remainder of this paper is organized as follows. In section two I describe the two ICN survey instruments which provided much of the data used in the research for this paper. In section three I describe the econometric strategy and the analysis performed, distinguishing between those regressions that take account of recipient jurisdictions' and recipient competition authorities' circumstances and those that do not. The indices that I construct in an attempt to capture the determinants of the absorptive capacity of competition authorities and the socio-economic

development of recipient jurisdictions are also described here. Section four offers some concluding remarks and highlights certain implications for policymakers.

I. The 2004-2005 ICN survey on the characteristics and effectiveness of technical assistance

During the year 2004 and 2005 several members of the Technical Assistance Subgroup of the ICN's Competition Policy Implementation Working Group conducted a number of related surveys on the technical assistance received by ICN members. An initial assessment of these surveys was presented at the ICN's Annual Conference in Bonn, Germany, in June 2005. ICN (2005) provides an account of the survey methodology, information on the performance of competition authorities, and the findings of an initial exploration of the linkages between authorities' performance and the design and implementation of technical assistance programmes.² At that stage little econometric analysis was undertaken and the findings reported in ICN (2005) are qualified appropriately. In late 2005 and in 2006 members of the Technical Assistance Subgroup sought to examine these survey responses more systematically and this is one of the papers completed as part of this research initiative.

For the purposes of the present study the following paragraph, contained in the concluding section of ICN (2005), provides an excellent motivation for the matters explored here:

"The extensive modern experience with technical assistance raises the question of what specific initiatives or combinations of

² In the interests of full disclosure I was one of the non-governmental advisors who contributed to this report, to the research underlying a small part of that report, as well as offering a few pointers on the design of the survey questionnaires.

projects have made the greatest contributions to the establishment of effective competition policy institutions. The question is significant and urgent, as there is general recognition that successful efforts to build sound institutional foundations at the outset of reforms can greatly enhance the prospects of effective implementation of competition laws in the short- and longer terms. A consequence of the experimentation inherent in the development of new competition regimes, and the evolution of older systems, is that we have a deep and diverse base of experience to inform judgments about how new competition authorities ought to proceed. In short, there are exciting opportunities for comparative study and learning about how to design and execute competition policy commands." (page 47)

In what follows specific use is made of the survey of General Projects and of the so-called Agency Surveys conducted by the Technical Assistance Subgroup. The former contains detailed information on 49 technical assistance projects received by 30 ICN members,³ many of which included more than one type of technical assistance activity. Seventeen questions yielding a maximum of 98 different responses were posed to recipient competition authorities. Question one of that survey supplies information on the types of technical assistance provided in each project (see Table 1). Moreover, question 16 of the survey asks recipient authorities to evaluate the effect of the entire technical assistance project on its performance along a number of dimensions. Agencies were to give reactions on a seven point scale, with a score of one indicating that the authority was "very dissatisfied" with the impact on a given measure of performance and a score of seven indicating that the authority was "very satisfied" (see Table 2).

Table 1

**SUMMARY STATISTICS OF THE PROJECTS SURVEYED IN THE GENERAL PROJECT
LEVEL SURVEY (ICN 2005)**

Characteristic of the general survey	Number of surveys where this characteristic is found	Percentage of total number of surveys
Total number of surveys completed	49.0	100.0
Project involved the presence of a long term advisor (TA1)	17.0	34.7
Project involved the presence of a short term advisor (TA2)	29.0	59.2
Project involved attendance at national/regional/international seminar or conference (TA3)	37.0	75.5
Project involved assistance in drafting laws or implementing regulations (TA4)	15.0	30.6
Project saw academic studies commissioned (TA5)	9.0	18.4
Project included study missions and internships abroad (TA6)	26.0	53.1
Project involved procurement on behalf of the competition agency. (TA7)	12.0	24.5
Project involved some other form of technical assistance not specified above (TA8)	7.0	14.3
Mean number of different types of technical assistance offered in the projects surveyed	3.10	na
Median number of different types of technical assistance offered in the projects surveyed	3.00	na
Coefficient of variation of the number of different types of technical assistance offered in the projects surveyed	1.96	na

³ This implies that for some countries information on more than one technical assistance project was included in the original ICN survey.

Table 2

**SUMMARY STATISTICS ON SURVEY RESPONSES ON THE IMPACT OF TECHNICAL ASSISTANCE
PROJECTS ON VARIOUS INDICATORS OF THE PERFORMANCE OF RECIPIENT
COMPETITION AGENCIES**

Statement	Answer number in the general project level survey (see ICN 2005)	Number of survey responses	Mean survey response	Median survey response
The overall impact of the project on the effectiveness of the Agency in fulfilling its mission or objectives	81	40	5.6	5.0
[The overall impact of the project saw a] resulting improvement in the skill levels of the staff	82	46	5.7	6.0
[There were] resulting improvements in the operations of the Agency due to this project	83	46	5.3	5.0
[There were] resulting improvements in the Agency's ability to conduct competition advocacy due to this project	84	39	5.2	5.0
[There were] resulting improvements in the speed with which cases that are within the Agency are resolved	85	39	4.7	5.0
[There were] resulting improvements in the ability of Agency staff to handle complex cases due to this project	86	43	5.0	5.0
[There were] resulting improvements in the ability of Agency staff to select which cases are given a high priority	87	42	5.0	5.0
[There were] resulting improvements in the ability of the Agency Staff to handle new types of cases or violations due to this project	88	42	5.1	5.0
[There were] resulting improvements in the quality of decisions or recommendations rendered by the Agency due to this project	89	44	5.3	5.0
[There were] resulting improvements in the enforcement of the law due to this project	90	44	5.2	5.0

Note: The question posed here to each survey respondent asked for a reply on a seven point scale from 1 to 7, where 1 implied "very dissatisfied" and 7 implied "very satisfied."

Two other surveys that were undertaken as part of the Subgroup's initiative provided useful information for this study. The first concerned quantitative information on recipient competition authorities and is referred to as the Agency Data Sheet in ICN (2005). Question seven of this survey instrument asked competition authorities to report the total number of lawyers and economists employed by the competition authority. It should be noted that the government body responsible for implementing the national competition law may perform other non-competition law-related functions and so the survey instrument goes on to ask respondents to identify the number of economists and lawyers solely devoted to enforcing the competition law. Unfortunately, the number of competition authorities that responded to this latter question is far fewer than the number who responded to the former inquiry. As a result, so as to avoid losing too many countries from the sample, I used the data on the total number of lawyers and economists employed at the government body that happens to implement national competition law.

Information on the independence of the competition authority, the number of years since the authority was established, and the number of different heads that an agency has had since its creation can be found in the so-called Agency Survey reported in ICN (2005). Answers to three

questions in that survey instrument were used in this respect (see Annex I of this paper for further details.)

Table 1 provides information on the prevalence of the different types of technical assistance that was undertaken in the 49 projects surveyed. By far the most prevalent form of technical assistance offered was attendance at national, regional, and international seminars, which occurred in over three-quarters of projects. Short term visits by an advisor or consultant occurred in 60 percent of projects. Half of all projects involved study or internships abroad. Relatively few projects included academic studies (less than 20 percent.) On average each project involved three distinct types of technical assistance.

A summary of the survey responses by recipient competition authorities as to the overall effect of each technical assistance project on ten measures of agency performance can be found in Table 2. Approximately 40 survey respondents reported their evaluations on each of the ten performance metrics listed in Table 2. Overall, the mean (mode) level of satisfaction was high, being equal to 5.6 (6.0) out of 7.0. The effect of technical assistance projects on the skills of the authority's staff received the highest average score. In contrast, such projects appear to have the least effect on the speed with which cases before a competition agency are resolved. (This may be because some technical assistance projects impart sophisticated tools which require more time to be properly incorporated into the recipient authority's procedures).⁴ The differences in average scores might reflect actual differences in the reported impact of technical assistance projects on measures of agency performance, and the econometric strategy (described in the next section of this paper) will take account of this.

⁴ Another potential explanation is that judicial procedures play an important role in determining how quickly an agency deals with cases and that these procedures and related matters tend not be affected by technical assistance. I thank Claudia Schatan for pointing out this logical possibility.

II. Econometric strategy and implementation

The goal of the econometric strategy employed here was two fold: (i) to estimate the effects of different types of technical assistance on numerous indicators of recipient agency performance and (ii) to examine whether the impact of each form of technical assistance was contingent on either the capacity of the competition authority to absorb technical assistance or on the level of socio-economic development in the recipient jurisdiction. Implementing such a strategy could reveal which types of technical assistance are more effective than others and under what circumstances, if any, each type of technical assistance is more effective.

The economic literature on international technology transfer⁵ and the diffusion of best practices suggests that the "absorptive capacity" of a recipient firm, industry, or sector is an important determinant of the extent to which exposure to better practices translates into higher productivity and other measures of performance. In this economic literature having staff with greater technical training and expertise is thought to, amongst other factors, facilitate the transfer of technologies from abroad. In our context it would be interesting to see if older, more stable, and independent competition authorities with more lawyers and economists on their staffs can take better advantage of the technical assistance that they receive than other competition authorities. Moreover, it would be useful to learn if the

⁵ For a recent survey of this literature see Keller (2004).

socio-economic conditions in a recipient jurisdiction have implications for the effectiveness of different types of technical assistance. The first step taken, however, was to examine the effects of technical assistance without conditioning for these particular factors. Once controls are introduced for both the nationality of the survey respondent and the performance measure, are the estimated effects of different types of technical assistance on recipient authority performance the same?

The ordinal nature of the survey responses implies that employing Ordinary Least Squares (OLS) estimation techniques would not be appropriate. Instead Ordered Logit and Ordered Probit estimation techniques were used and the results compared.⁶ Specifically, the survey responses concerning the impact of the entire technical assistance project on recipient agency performance (whose characteristics were summarized in the last section and in Table 2) was the dependent variable used in the analysis. A vector of fixed effects to pick-up respondent-specific variation and the variation across different survey questions comprised a subset of the independent variables. The other independent variables were dummy variables that indicate the presence, or otherwise, in a given technical assistance project of the eight types of technical assistance listed in Table 1. The results from using Ordered Logit and Ordered Probit estimation techniques are reported in the panels of Table 3.

Table 3

ESTIMATES OF THE EFFECTS OF DIFFERENT TYPES OF TECHNICAL ASSISTANCE ON THE PERFORMANCE OF COMPETITION AGENCIES

Independent variables (and associated abbreviations)	Specification 1			
	Ordered Logit		Ordered Probit	
	Parameter estimate	p-value	Parameter estimate	p-value
Presence of a long term advisor (TA1)	1.068	0.031	0.632	0.017
Presence of a short term advisor (TA2)	-0.636	0.102	-0.405	0.052
Attendance at national/regional/international seminar or conference (TA3)	-1.536	0.008	-0.993	0.001
Assistance in drafting laws or implementing regulations (TA4)	1.143	0.057	0.554	0.068
Academic studies commissioned (TA5)	1.257	0.291	0.828	0.194
Study missions and internships abroad (TA6)	0.793	0.043	0.428	0.040
Procurement (TA7)	-0.347	0.420	-0.108	0.627
Other technical assistance (TA8)	-0.316	0.712	0.075	0.870
Memos:				
Number of observations	433		433	
p-value on statistical significance of the regression	0.000		0.000	
Pseudo-R2	0.271		0.263	

Note: Each regression includes a full range of country-specific dummy variables and question-specific dummy variables. The ICN survey mentioned in the text is the source for all of the data used in the regressions reported above.

⁶ Moreover, for completeness sake these results were compared to those recovered using OLS.

Comparing across the columns of Table 3 one can see that the pattern of estimation results is very similar.⁷ Technical assistance projects involving long term advisors, assistance in drafting competition laws and implementing regulations, and study missions and internships abroad appear to enhance recipient agency performance. In contrast, attendance at national, regional, and international seminars or conferences tends to reduce agency performance, at least according to these estimates. The following four types of technical assistance had no robust, statistically significant impact on recipient agency performance: visits by short term advisors, academic studies, procurement on behalf of the recipient agency, and other unspecified forms of technical assistance. In short, the composition of technical assistance projects matters. The effects of different types of technical assistance are not the same.

The second step was to construct summary statistics for the socio-economic conditions in a recipient country and for the capacity to absorb technical assistance by a competition agency. There are no established procedures for making either calculation. My defense of the measures constructed here is that they are based on plausible observable determinants of the variable in question and use publicly available data sources (facilitating replication by others).

The indicator for each recipient nation's socio-economic development was constructed from five empirical measures, the source of which is the World Bank's World Development Indicators Online. The first measure relates to corruption and equals the percentage of managers in a nation who (when surveyed by the World Bank or its associates) ranked corruption as a major constraint on their business. The second measure is the number of days that it takes to complete the paperwork to start a business, which is an indicator of the business-friendly nature of the national economy. The third measure is the percentage of the population whose income is less than two dollars a day (measured on a purchasing power parity basis.) This is one of the most widely accepted measures of national poverty. The fourth measure is the standard Gini coefficient of inequality. The fifth measure is the national income per capita, measured again on a purchasing power parity basis. Higher levels of the first four indicators are typically associated with lower levels of socio-economic development. The reverse is true of the fifth measure. Denote the value of measure number i in country j by X_{ij} .

For the entire sample of recipient countries, the maximum of each of these measures was calculated. The maximum of measure number i is denoted XM_i , $i=1,\dots,5$. For measures numbered $i=1,\dots,4$, form for each country j the ratio $R_{ij}=(X_{ij}/X_{M_i})$. For measure number 5 form for each country j the ratio $R_{5j}=(X_{5j}/X_{M_5})$. In this form the ratios R_{ij} take higher values when the underlying indicators of socio-economic development are better. A composite indicator of socio-economic development is computed from these ratios. As there is no obvious reason to weigh any one of these five measures of development more than the others, the most straightforward composite index to calculate would be some average of the five ratios. I took the geometric mean of a country j 's R_{ij} as an aggregate measure of that country's socio-economic development. The higher is the geometric mean the further is a nation from the worse record in the sample for corruption, times to set up a business, poverty, inequality, and per capita incomes in the sample. The values of these geometric means are reported in Appendix 2 for each nation in the sample.⁸

As far as absorptive capacity is concerned, I wanted to construct a relatively objective measure from the factors that are likely to increase the benefits that a recipient competition agency gets from a technical assistance project. Four factors seem relevant to me. Long-established and functioning agencies may be better prepared to make the most of any technical assistance that they receive. Senior officials in independent competition authorities may have a stronger incentive to

⁷ For what it is worth the unreported OLS estimates follow the same pattern too.

⁸ It should be noted that data on all five underlying measures was not available for every country in the sample. When fewer than five indicators are available I still calculated the appropriate geometric mean to obtain the value of the composite index for the country in question.

ensure that their staff acquires the skills necessary to operate expertly and dispassionately, so potentially reducing criticism from elected officials and the media. Agencies that frequently turnover their heads may be distracted by internal organizational matters and may make less of any technical assistance that is offered to them. Likewise, competition agencies short of staff may be unable to profit as much from technical assistance. The ICN survey contains evidence on each of these factors and this is used to construct a composite measure of absorptive capacity.

For each recipient competition authority that took part in the ICN (2005) General Project survey the following calculation was made. The number of times each of the following criteria was met was calculated:

- 1) The competition authority is an independent body.
- 2) The competition authority was established and began operations at least five years ago.
- 3) The average tenure of the heads of the competition authority is at least three years.
- 4) The number of professional lawyers and economists employed by the competition authority equals or exceeds 10.

Denote the number of times these criteria are met by n and the number of times that they are not by n^* . I took my measure of the absorptive capacity of a competition authority to equal the ratio $(n/(n+n^*))$, which is always less than or equal to one and obviously increases as the number of criteria listed above are met. The computed values of this indicator for absorptive capacity for each nation in the sample are reported in Annex II.

With these two indicators I then examined how sensitive the effect of each form of technical assistance on agency performance is to the levels of socio-economic development and absorptive capacity. First, I considered the effect of absorptive capacity. I performed an Ordered Logit regression similar to that reported earlier but added eight new independent variables, corresponding to the dummy variables indicating the receipt of different types of technical assistance interacted by the aggregate measure of absorptive capacity. (A comparable regression was run using Ordered Probit and similar results were found. As a result the latter results are not reported in this paper.) The parameter estimates obtained from this Ordered Logit procedure are reported in the second panel in Table 4.

To establish the effect of socio-economic conditions on the impact of technical assistance activities, I performed a slightly different Ordered Logit regression. Instead of interacting the technical assistance dummy variables with the indicator of absorptive capacity, I interacted the former with the composite measure of socio-economic development described above. The resulting econometric parameters are found in the third panel of Table 4.

One logical possibility is that absorptive capacity and socio-economic development both influence the effectiveness of technical assistance. To consider this possibility I undertook a separate Ordered Logit, this time interacting the technical assistance dummies with the product of the indicators for absorptive capacity and socio-economic development. This product will be lower in countries with poor absorptive capacity and higher rates of poverty etc. The resulting econometric estimates are found in the last panel of Table 4.

Having the three panels of estimation results in Table 4 is convenient as it enables the reader to check whether a coherent pattern of estimation results has emerged. There are interesting similarities across all three panels of results in Table 4. There is no reason in principle why this should be so but socio-economic factors and absorptive capacity appear to influence the effectiveness of five types of technical assistance in the same way.

Table 4

THE EFFECT OF ABSORPTIVE CAPACITY AND SOCIO-ECONOMIC DEVELOPMENT ON THE IMPACT OF TECHNICAL ASSISTANCE TO COMPETITION AGENCIES

Independent variables (and associated abbreviations)	Specification 2: Ordered logit with interaction terms for absorptive capacity				Specification 3: Ordered logit with interaction terms for socio-economic development				Specification 4: Ordered logit with interaction terms for absorptive capacity and socio- economic development			
	Estimates for original independent variable		Estimates for the interaction term		Estimates for original independent variable		Estimates for original independent variable		Estimates for original independent variable		Estimates for the interaction term	
	Parameter estimate	p-value	Parameter estimate	p-value	Parameter estimate	p-value	Parameter estimate	p-value	Parameter estimate	p-value	Parameter estimate	p-value
Presence of a long term advisor (TA1)	-25.272	0.000	28.410	0.000	-22.429	0.001	8.872	0.000	-6.004	0.041	3.313	0.014
Presence of a short term advisor (TA2)	3.334	0.018	-4.584	0.004	4.343	0.036	-2.233	0.017	1.384	0.175	-1.205	0.029
Attendance at national/regional/ international seminar or conference (TA3)	17.922	0.001	-18.370	0.002	4.441	0.159	0.642	0.493	1.588	0.562	0.584	0.533
Assistance in drafting laws or implementing regulations (TA4)	1.767	0.025	^a	^a	16.333	0.000	-5.109	0.003	6.716	0.007	-1.804	0.109
Academic studies commissioned (TA5)	5.587	0.308	-1.159	0.822	-10.679	0.036	1.221	0.304	-0.883	0.793	0.081	0.930
Study missions and internships abroad (TA6)	-23.400	0.000	27.490	0.000	-6.037	0.028	4.180	0.001	-2.218	0.360	2.438	0.028
Procurement (TA7)	20.356	0.003	-19.938	0.006	9.122	0.000	-2.359	0.000	8.214	0.000	-2.579	0.000
Other technical assistance (TA8)	4.911	0.510	-11.795	0.157	0.732	0.890	-5.247	0.001	5.974	0.112	-5.166	0.000
Memos:												
Number of observations				433				433				433
P-value on statistical significance of the regression				0.000				0.000				0.000
Pseudo-R ²				0.344				0.354				0.351

Note: Each regression includes a full range of country-specific dummy variables, interviewer-specific dummy variables, and question-specific dummy variables.

^a Implies that no parameters were estimated for this interaction term because of perfect collinearity.

The estimates for the impact of long term advisors and study missions and internships abroad are similar. Countries with low levels of absorptive capacity and socio-economic development appear to gain less from these forms of technical assistance. Moreover, the regression results imply that only when the absorptive capacity or socio-economic development is sufficiently advanced that long term advisors and study missions and internships abroad should be employed. In other cases, the evidence points to reductions in recipient agency performance perhaps because of a mismatch between the detailed expertise provided by these forms of technical assistance and the more foundational needs of nascent competition authorities.

In contrast, the impact on recipient agency performance of short term visits by advisors and consultants, assistance in drafting laws and implementing regulations, and procurement on behalf of the authority tend to decline when absorptive capacity and socio-economic development improves. (There is evidence too of a similar relationship between attendance at seminars and conferences and absorptive capacity, but not for socio-economic development.) The regression estimates imply that at some point in the development of national economies and in the development of absorptive capacities, these forms of technical assistance should be phased out.

Different forms of technical assistance react distinctively to the circumstances of the both recipient nation and the recipient agency, or so these regression results would imply. These findings could help suppliers of technical assistance to better tailor the contents of their programmes to recipient national circumstances. Moreover, these results could indicate to potential recipients of technical assistance what types of external help have contributed the most to raising agency performance in jurisdictions with similar socio-economic and institutional circumstances.

Although a number of robustness checks were performed for this study, which confirmed the broad thrust of the findings reported here, arguably there is always room for more such checks. Some readers may have concerns about the manner in which the indicators for absorptive capacity and socio-economic development were calculated, and may wish to propose alternative measures. Others may wish to expand the sample to include more technical assistance projects or restrict the sample to focus on certain types of recipient nations or certain geographic regions. Finally, I have focused on the independent impact of different types of technical assistance, and some may wish to examine if certain packages of technical assistance perform better than others.

III. Concluding remarks and implications for policymaking

Given that there are different types of technical assistance and that resources are scarce, it is important to establish which forms of technical assistance work best and under what circumstances. In this paper I have tried to advance our knowledge in this regard by estimating the effects of eight types of technical assistances on ten measures of the performance of recipient competition authorities. Moreover, I have tried to control for the socio-economic conditions of the recipient nation and the capacity of the recipient competition authority to absorb technical assistance. In short, I find that both of the latter factors matter in that they influence the effectiveness of different types of technical assistance in discernable ways. These results not only highlight the importance of tailoring technical assistance to recipient country circumstances but also provide some pointers as to how to do so.

The regression results in this paper suggest that countries that have young or unstable competition authorities or countries experiencing low levels of socio-economic development have found that the visiting short term advisors and consultants, external help with legislative drafting, and procurement support boost the performance of the competition authority. Long term advisors and going on study missions and internships abroad are probably not suited for these jurisdictions, as they are likely to reduce rather than enhance recipient agency performance. However as absorptive capacity grows, perhaps because more technical staff are employed and retained or because

internal procedures are developed to ensure that lessons learned through technical assistance are retained and diffused within a competition agency, the benefits of the three former types of technical assistance decline, albeit at different rates. The diminishing effectiveness of such technical assistance is also found when a country's socio-economic conditions improve.

If the goal of a technical assistance programme is solely to improve the effectiveness of a competition agency then these results imply that, as absorptive capacity and socio-economic conditions improve in a country, then technical assistance in the form of short term advisors and help with legislative drafting should probably be phased out and subsequently replaced with long term advisors and study missions and internships abroad.

Commissioned academic studies are found to add little to recipient agency performance. Attendance at national, regional, and international seminars has a mixed record, and the effectiveness of this form of technical assistance tends to decline as absorptive capacity increases. If these findings are taken at face value, and especially if they are confirmed by other empirical research, then they may well have important implications for the mix of technical assistance activities offered by established competition agencies, aid ministries, and certain international organizations.

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Annexes

Annex I

RESPONSES FROM THE ICN SURVEY EMPLOYED IN THE CREATION OF SOME OF THE VARIABLES USED IN THIS STUDY

Variable	Source	Page in ICN (2005)
Dependent variable	Answers 81-90 to question 16 of the General Project Level survey	A-9 and A-10
Presence of a long term advisor (TA1)	Answer number 2 to question 1 of the General Project Level survey	A-7
Presence of a short term advisor (TA2)	Answer number 3 to question 1 of the General Project Level survey	A-7
Attendance at National/Regional/International seminar or conference (TA3)	Answer number 4 to question 1 of the General Project Level survey	A-7
Assistance in drafting laws or implementing regulations (TA4)	Answer number 5 to question 1 of the General Project Level survey	A-7
Academic studies commissioned (TA5)	Answer number 6 to question 1 of the General Project Level survey	A-7
Study missions and internships abroad (TA6)	Answer number 7 to question 1 of the General Project Level survey	A-7
Procurement (TA7)	Answer number 8 to question 1 of the General Project Level survey	A-7
Other technical assistance (TA8)	Answer number 9 to question 1 of the General Project Level survey	A-7
Independence of the competition agency (an element in the index of absorptive capacity)	Answer number 9 to question 7 of the non-quantitative agency survey	A-3
Number of years since the competition agency was established and began functioning (an element in the index of absorptive capacity)	Derived from answer number 5 to question 4 of the non-quantitative agency survey	A-3
Number of different heads at a competition agency since its establishment (used to calculate the average tenure of a head, which is an element in the index of absorptive capacity)	Answer number 6 to question 5 of the non-quantitative agency survey	A-3
Number of lawyers and economists employed by the competition agency (an element in the index of absorptive capacity)	Answers 37 and 39 to the quantitative agency survey (sometimes referred to as the Agency Data Sheet.)	A-2

Annex II

VALUES OF THE CONSTRUCTED PROXIES FOR ABSORPTIVE CAPACITY AND SOCIO-ECONOMIC DEVELOPMENT

Country	Indicator of absorptive capacity		Indicator of social-economic development	
	Value	Rank	Value	Rank
Armenia	1	1	1.81	15
Barbados	0.67	3	0.49	29
Brazil	0.5	4	1.02	24
Bulgaria	1	1	2.47	11
Chile	0.75	2	2.09	13
Columbia	0.5	4	1.33	21
Costa Rica	0.25	6	1.63	16
Croatia	1	1	3.21	5
Estonia	1	1	3.26	4
Hungary	1	1	4.15	2
Indonesia	0.75	2	0.90	26
Jamaica	0.5	4	1.58	17
Kenya	0.5	4	0.48	30
Latvia	1	1	3.06	6
Lithuania	1	1	3.05	7
Macedonia	0.5	4	2.69	10
Mexico	1	1	1.30	22
Netherlands	0.5	4	2.98	8
Panama	0.75	2	1.11	23
Peru	0.75	2	0.99	25
Poland	1	1	3.31	3
Romania	1	1	2.05	14
Russian Federation	0.67	3	2.74	9
Slovenia	0.75	2	4.47	1
South Africa	1	1	1.38	20
Thailand	0.33	5	1.44	18
Turkey	1	1	2.31	12
Uzbekistan	0.75	2	1.42	19
Venezuela	0.5	4	0.85	27
Zambia	1	1	0.74	28

Note 1: The simple correlation coefficient between these two indicators is 0.367.

Note 2: The Indicator of Absorptive Capacity was calculated by the autor using responses from the ICN survey. Other than the question concerning the agency's self-assessment of its own independence, from this Indicator it is impossible to infer the exact nature of any survey response given by any ICN member.



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